

ABSTRACT

A substrate structure comprising a substrate; a solder mask is formed over the substrate; and a metal trace structure formed within the solder mask. The metal trace structure including a channel therein for the receipt of underfill. The metal trace structure further including a central portion with arms radiating outwardly therefrom, dividing the solder mask into separate areas. A method of underfilling a chip wherein a chip having a pattern of solder bumps formed on the underside of the chip is placed underside first onto the metal trace structure of the present invention. The solder bump pattern including openings over the metal trace structure. Underfill is introduced into the metal trace structure so that the underfill flows from the metal trace structure and between the solder bumps to underfill the chip.